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crisped after the manner of curled hair. Its capsules are single, and much shorter and more strongly arcuate than in the above species. Under the microscope it is at once distinguished by the short upper leaf cells nearly or quite as broad as long and often quadrate. None of the leaf cells are porose (rarely a very few near the base).

Another species with curved capsules is the pale Dicranum (*D. pallidum, D. spurium condensatum* of L. & J. Manual). This is found on sandy plains in New Jersey and the neighboring territory, but is probably not found elsewhere within the range mentioned above. It is distinguished from all the above mentioned species by its small size (less than one inch in height); from the broom moss by its short irregular upper leaf cells with cell walls without pores, excepting a very few in the lower part; from the fuscous Dicranum by the more compact tufts, and leaves equally spreading, not secund, and little crisped.

There are two common species with erect straight capsules. Of these two, the flagellate Dicranum (*D. flagellare*) is much the more common. It is found in moist woods nearly everywhere. It grows on *decayed logs and stumps*, and often produces abundant flagellæ from the upper part of the plant. These flagellæ bear minute ecostate leaves very different from those on the main plant. In this species the costa does not extend to the apex of the leaf.

The other erect capsuled Dicranum, the fulvous Dicranum (*D. fulvum*) grows on *rocks* and has the costa excurrent—that is, extending beyond the lamina of the leaf into a thick point. In our next number we plan to publish an entirely new key to the whole twenty species. This key will be especially adapted to the use of beginners. We also hope to have some of the rarer species to distribute.

MICROSCOPIC PREPARATIONS OF MOSSES.

PORTIONS of the types of Hedwig's species, many of which are North American, and all of which date back to the beginning of this century, are preserved at the Boissier Herbarium in Geneva, mounted on small mica slides. The medium is a very durable one, for all the slides which I have examined have kept perfectly, and it seems to have been easily handled, for the specimens are not shrivelled or broken. I have since adopted this method for keeping all dissections that I make of the mosses, and have also learned that others have done the same. I quote from the *Revue Bryologique* for 1893, M. Amann's remarks on this subject:

"The employment of mica slides for the preserving in the herbarium microscopic preparations of the organs of the mosses was recommended in 1853 by Carl Mueller in his 'Deutschlands Moose.' This eminent bryologist says in one of the numbers of *Natur* that thanks to this method, which permits the comparison under the microscope in a few minutes of the organs of a great number of species, it has been possible for him to devote himself to the systematic study of the mosses of the entire world.

"In fact these microscopic preparations accompanying every specimen in the herbarium and enclosed in the same envelope with the specimen from which they were taken, permits a great economy of time and are for that reason exceedingly convenient."

M. Amann objects to them, however, as dry mounts, because of the imperfection of the image and because all our modern objectives are corrected for a standard thickness of cover-glass. He therefore prefers to use a small slide, only 25 mm. long and ¾ mm. thick, which is specially made for anatomical preparations. As a mounting medium he uses gum arabic dissolved in glycerine jelly, thinned with distilled water, to the thickness of honey. Specimens transferred from either cold or hot water to this medium harden in a few hours and preserve indefinitely, being less bulky than ordinary slides for microscopic preparations.—*E. G. Britton.*

My method of making microscopic slides is as follows: Dissections are made in water on the stage of a simple microscope. This stage is removable so that it can be placed under a compound microscope and the smaller parts examined without disturbing their position. Such parts as I wish to retain are transferred to a few drops of dilute glycerine (10 to 20 per cent.) on a glass slide on the end of which a number is marked with pen and ink for means of identification. This is set aside without cover glass until the water has entirely evaporated, leaving only clear glycerine. It usually requires at least an hour, generally more, unless the slide is placed where it will be warm (but not *hot*).

I usually leave it over night when convenient. After this it only remains to again transfer to hard glycerine jelly by almost any of the methods in general use. For the "permanent" slide and cover I now invariably use mica. The slides are fairly stiff and from 1¾ to 2 inches long by ¾ or ⅞ wide, while the covers are thinner and ⅝ by ½ inch or larger, as the particular case demands. These slides are placed in small envelopes glued to the herbarium sheets on which the plants, from which the dissections were made, are fastened. The necessary legend for identification is easily scratched on the mica with a metal point. —*J. Franklin Collins.*

As some of our readers may not be familiar with glycerine jelly, it may be useful to state that it can be bought of any dealer in microscopical supplies. It can be softened for use by heating a bit on a slide, or by immersing the bottle in cold water and then raising the water to the boiling point, when the jelly will be liquefied. If a slide bearing a water or glycerine mount be slightly warmed, the jelly can be easily run under the cover glass by putting a drop on one side and drawing out the other medium at the other side with a piece of blotting paper. An ordinary kerosene lamp can be used to warm slides if nothing better is at hand.

Mr. Collins' method will do away with the shrinkage which is so troublesome when water mounts are transferred directly to the jelly. I once obtained a large quantity of excellent mica from a wall-paper factory where it was ground up to make the glittering specks in the wall-paper. This was much cheaper than the article ordinarily sold at hardware stores because of the small size of the pieces. I do not think that the ordinary moss mount requires a power high enough to render the variations in thickness of covers of very great importance and always use mica covers for my small slides.—*A. J. G.*

MOSSES FOR DISTRIBUTION.

Specimens of Dicranum scoparium, D. fuscescens, D. fulvum, D. flagellare, and D. pallidum (this last by courtesy of Mr. C. F. Saunders) will be sent to any subscriber for 12 cents. A sterile specimen of D. undulatum will be added for an extra two cents if any failed to take advantage of Mr. Stultz's offer.

NEW AMERICAN MOSSES.

From Notes on California Bryophytes, by M. A. Howe in Erythea. **5**: 92. 1897.

STABLERIA GRACILIS (Wils.) Lindb. ''On charred stumps and logs, mainly of *Sequoia sempervirens*. First collected in Turner's Cañon between Cazadero and Fort Ross, Sonoma county, March 15, 1896; later at various stations in Mendocino county, and near Eureka, Humboldt county. Most of these specimens, in our judgment, cannot be distinguished even varietally from the European plants. The processes of the endostome are often as long